Current and Planned Reports and Conferences of the National Council on Radiation Protection and Measurements

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President

Presentation to Nuclear and Radiation Studies Board

National Academy of Sciences

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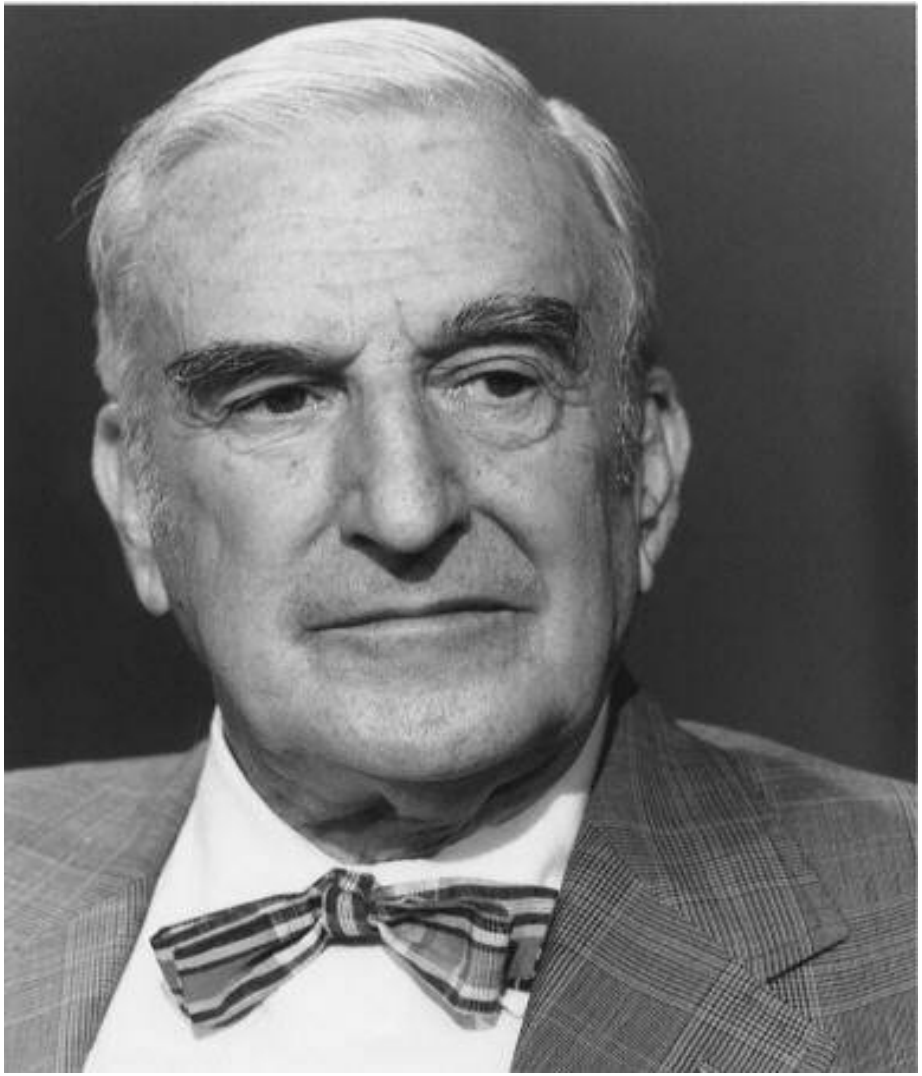
Topics of Discussion

- NCRP's history and mission
- Overview of NCRP's contributions to radiation protection and measurements
- Focus of recent publications
- Forthcoming publications
- Plans for major report on effects of low-dose radiation exposures
- 2009 NCRP Annual Meeting on "Future of Nuclear Power Worldwide: Safety, Health and Environment"



Lauriston Sale Taylor
June 1, 1902 – Nov. 26, 2004

Early History

1929: U.S. Advisory Committee on X-Ray and Radium Protection

1946: U.S. National Committee on Radiation Protection

1964: National Council on Radiation Protection and Measurements (NCRP) chartered by U.S. Congress

Key Elements of NCRP's Charter

Cornerstones of national role in radiation health protection:

1. Provide information and recommendations in the public interest about:
   a. protection against radiation; and
   b. radiation measurements, quantities and units.
2. Develop basic concepts of radiation protection.
3. Facilitate effective use of combined resources of organizations concerned with radiation protection.
4. Cooperate with national and international governmental and private organizations.

NCRP's Contributions to Radiation Health Protection

NCRP has had four productive decades since being chartered by Congress in 1964

- Publication of 158 reports (128 since 1964) and 98 other documents (commentaries, statements, conference proceedings, Taylor lectures, journal articles, Presidential reports).
- Significant contributions to radiation health protection in several major areas:
  - Exposure limits and their scientific basis;
  - Public and worker exposures;
  - Radiation protection practices in industry, medicine, and educational institutions;
  - Environmental radiation and radioactive waste management and disposition issues; and
  - Radiation measurements and dosimetry.

Focal Areas of NCRP Publications Since 2000 (see http://NCRPpublications.org)

Topical Areas	*Publications*
Radiation Protection in Medicine	Reports No. 133, 140, 145, 147, 148, 149, 151, 155
Homeland Security and Management of Nuclear and Radiological Terrorism Events	Report 138, Commentaries No. 16, 17, 19, 20; Proceedings of 2004 Annual Meeting
Basic Radiobiology, Dosimetry and Guidance on Exposure Limitations	Reports No. 131, 135, 136, 137, 150, 153, 156, 158; Statement No. 10; Proceedings of 2002 and 2003 Annual Meetings
Environmental Radioactive Waste Classification, Management, and Disposition	Reports No. 139, 141, 143, 146, 152, 154; Proceedings of 2005 Annual Meeting
Operational Radiation Safety	Reports No. 134, 142, 144, 157

Recent NCRP Publications (2006-2007)

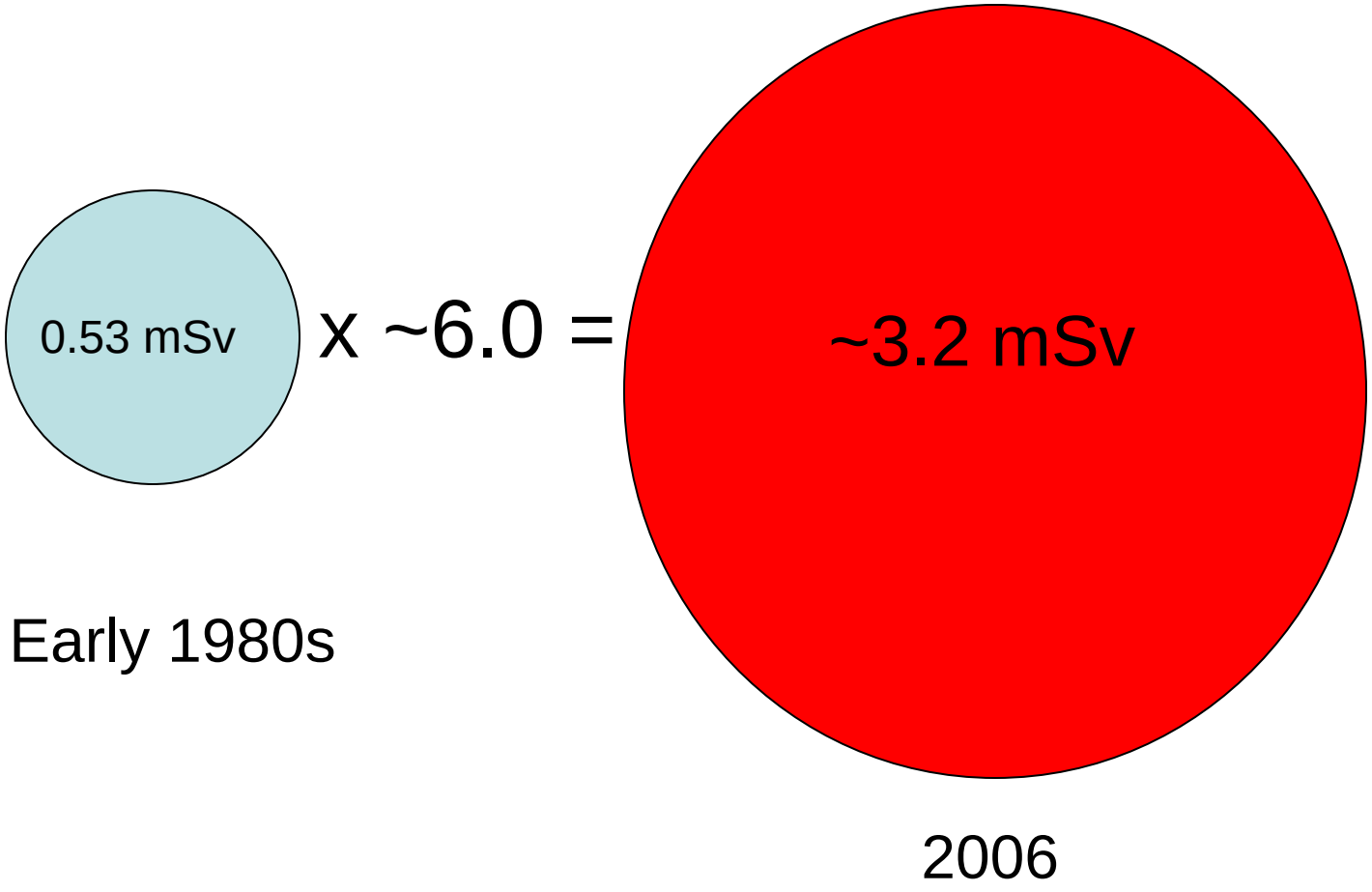
- Report No. 153: *Information Needed to Make Radiation Protection Recommendations for Space Missions Beyond Low-Earth Orbit*
- Report No. 154: *Cesium in the Environment: Radioecology and Approaches to Assessment and Management*
- Report No. 155: *Management of Radionuclide Therapy Patients*
- Report No. 156: *Development of a Biokinetic Model for Radionuclide-Contaminated Wounds and Procedures for Their Assessment, Dosimetry and Treatment*
- Report No. 157: *Radiation Protection in Educational Institutions*
- Commentary No. 20: *Radiation Protection and Measurement Issues Related to Cargo Scanning with Accelerator-Produced High-Energy X Rays*
- 2006 Annual Meeting Proceedings: *Chernobyl at Twenty* [Health Phys. **93**(5), 345-595 (2007)]

Forthcoming NCRP Publications (2008)

- Report No. 158: *Uncertainties in the Measurement and Dosimetry of External Radiation Sources*
- Report on *Risk to the Thyroid from Ionizing Radiation*
- Report on *Management of Persons Contaminated with Radionuclides*
- Report on *Ionizing Radiation Exposure of the United States Population*
- Proceedings of 2007 NCRP Annual Meeting on *Advances in Radiation Protection in Medicine* (to be published in *Health Physics* in 2008)

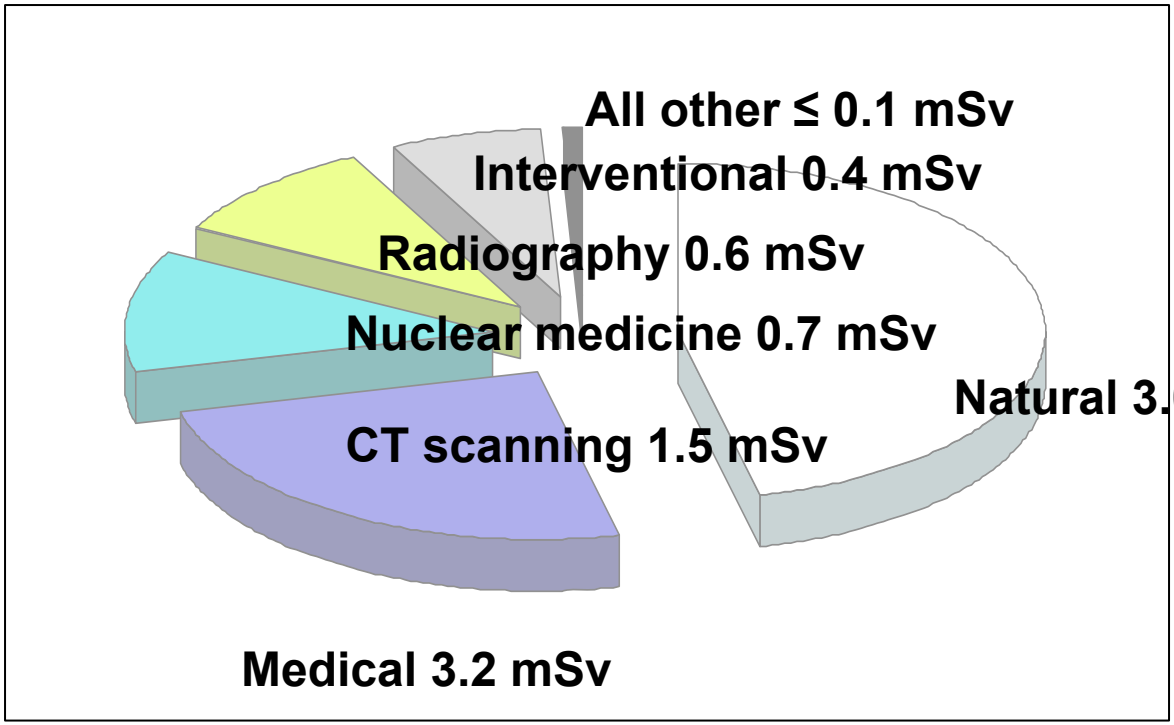
Report on "Ionizing Radiation Exposure of the U.S. Population"

Per capita radiation dose from medicine has increased by ~ 6



These results have not been reviewed and approved by Council.
Not to be disseminated or referenced

Preliminary Estimate of Sources of Radiation Exposures to U.S. Population in 2006



Total Average Annual Exposure ~ 6.3 mSv per capita

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Not to be disseminated or referenced

NCRP Collaborative Efforts Related to Radiation Protection in Medicine

- *American College of Radiology White Paper on Radiation Dose in Medicine*, JACR **4**, 272-284 (2007).

- Medical Imaging and Technology Alliance. *How Innovations in Medical Imaging Have Reduced Radiation Dosage*.

  See www.medicalimaging.org

Other Health-Related NCRP Reports that are In-Progress

- Second Cancers and Cardiopulmonary Effects After Radiotherapy
- Radiation Safety Issues for Image-Guided Interventional Medical Procedures
- Diagnostic Reference Levels in Medical Imaging: Recommendations for Applications in the United States
- Risks of Radiation to the Developing Embryo, Fetus and Nursing Child
- Population Monitoring and Decontamination Following a Nuclear or Radiological Incident
- Key Decision Points and Information for Decision Makers in the Aftermath of a Nuclear or Radiological Terrorism Incident

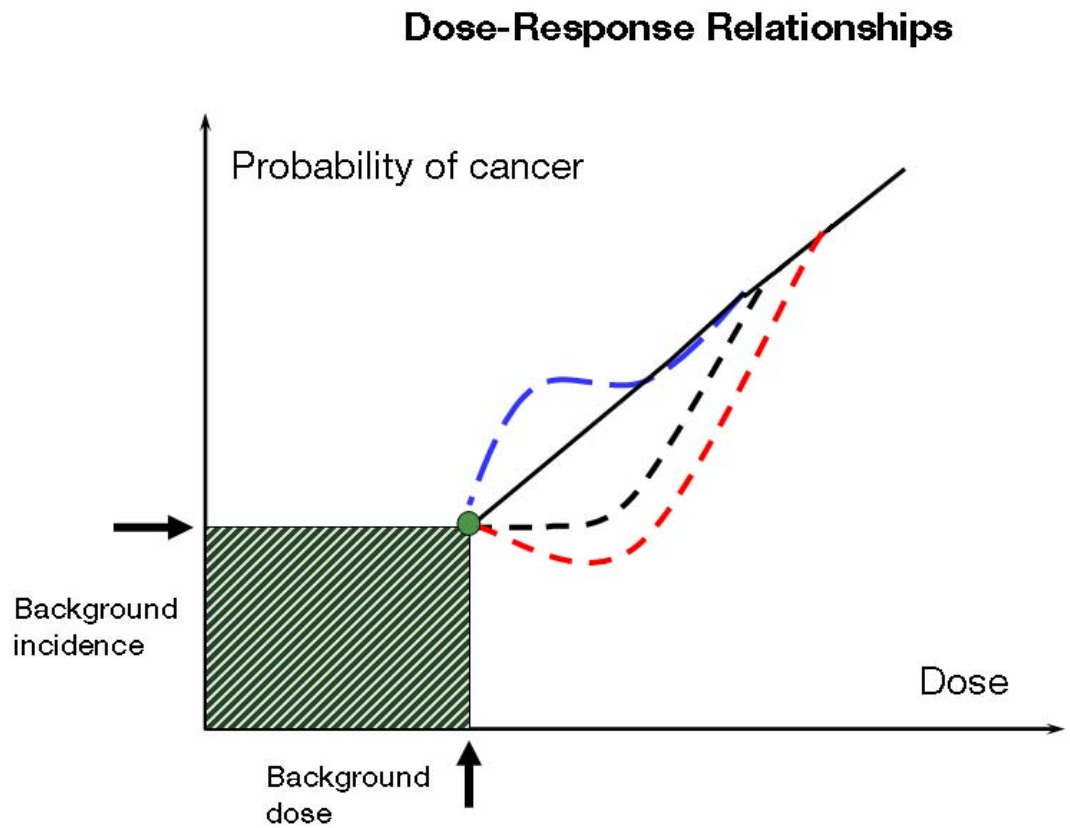
Other NCRP Reports that are In-Progress

(dosimetry, risk evaluation, and operational safety)

- Report on *Uncertainties in Internal Radiation Dosimetry*
- Report on *Uncertainties in Radiation Risk Estimates and Probability of Disease Causation*
- Report on *Principles and Practices of Radiation Dose Reconstruction*
- Report on *Self Assessment of Radiation Safety Programs*
- Report on *Design of Effective Effluent and Environmental Monitoring Programs*

Low-Dose Radiation Biological Effects

44th NCRP Annual Meeting in 2008 on *Low Dose and Low Dose-Rate Radiation Effects and Models* was well attended (464 registrants) and highly successful



NCRP Activities on Low-Dose Radiation Biological Effects & Health Implications

NCRP is currently planning a major report on *Low-Dose Radiation Effects and Implications for Human Health* that will

- incorporate results of extensive research on biological interactions of low-dose radiation sponsored by the U.S. Department of Energy and other organizations worldwide
- integrate results into reliable predictive models of human health effects of exposure to low-dose radiation, including consideration of radiation quality, dose levels, and dose rates
- evaluate health protection and regulatory implications of findings
- recommend effective communication methods for describing projected risks of low-dose radiation

2009 NCRP Annual Meeting

Future of Nuclear Power Worldwide: Safety, Health and Environment

- Primary topics to be addressed:
  - perspectives on growth in worldwide use of nuclear power sources (to 2030 and beyond)
  - advances in reactor and fuel-cycle technologies, including infrastructure needs and safety and nonproliferation requirements
  - radiological protection requirements related to human health and the environment
  - expansion of trained human resources and educational capabilities worldwide
  - effective public communication of risks and benefits of nuclear power

- Meeting to be held March 2-3, 2009 at Bethesda Hyatt Hotel